

Remarks

This is intended as a full and complete response to the Office Action dated October 28, 2004, having a shortened statutory period for response extended one month to expire on February 28, 2005. Claims 4, 6-9, 11-13, 16-22, 25-28, 31, 32, 34-36 and 39-42 remain pending in the application and are shown above. Claims 1-3, 5, 10, 14-15, 23-24, 29-30, 33 and 37-38 have been cancelled by Applicant. Claims 4, 6-9, 11-13, 16-22, 25-28, 31, 32, 34-36 and 39-42 are rejected by the Examiner. Please reconsider the claims pending in the application for reasons discussed below.

Claims 7-9, 13, 16, 18-22, 25-28, 31, 32, 34-36 and 39-42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chavet (WO 97/00928 which is the equivalent of U.S. Patent No. 6,072,065). The Examiner states that it would have been obvious to have modified the process of Chavet by using a raw oil that contains light hydrocarbons in the process because any oil that does not contain tarry materials would be expected to be effectively treated in the process. The Examiner also states the preliminary distillation step of Chavet is important in that it separates tarry material from the oil. The Examiner, therefore, asserts that if the oil does not contain tarry material, one would eliminate the preliminary distillation step since its function would not be needed. Applicants assume the Examiner intended to reject claims 4 and 6 for these same reasons.

Applicants have amended the claims as shown above which obviates the rejection. Chavet does not teach, show, or suggest the claimed invention as amended. Chavet discloses a four step process that includes a first preliminary distillation step (step (a)); an alkaline treatment step (step (b)); water wash followed by settling to recover the oil phase (step (c)); and distillation of the recovered oil phase (step (d)). (Chavet at col. 3, lines 11-25.) The preliminary distillation step (step (a)) is a two step distillation process to remove water and the heavy gasoline fractions in the first distillation step at atmospheric pressure and to recover a gas-oil fraction and vacuum distillate in the second distillation step under a reduced pressure. (Chavet at col. 3, lines 32-45 (emphasis added).) Step (b) then adds an alkaline reactant in the presence of a solvent to the previously dehydrated and separated distillate of Step (a). (Chavet at

col. 3, lines 61-63.) Step (c) then utilizes a water wash to remove the solvent and alkaline. (Chavet at col. 4, lines 40-47.) Chavet discloses that the "water washing operation or step (c)... is essential to remove any alkaline reactant in excess, the alcohol if used as a solvent and all water soluble by-products resulting from the alkaline reacted contaminants." (*Id.* At lines 43-47 (emphasis added)). The resulting, water washed oil phase is then distilled using a two step distillation process or step (d)). (Chavet at col. 5, lines 8-15.)

Considering base claim 4 as well as those dependent therefrom, Chavet does not teach, show, or suggest mixing a raw used oil (*i.e.*, no preliminary distillation of used oil to remove water and heavy gasoline fractions) with a base compound to form a mixture comprising used oil and base compound. Further, Chavet does not teach, show, or suggest processing the mixture comprising used oil and base compound to provide an at least partially dehydrated used oil mixture comprising used oil and base compound. Still further, Chavet does not teach, show, or suggest adding a phase transfer catalyst to the at least partially dehydrated used oil mixture comprising used oil and base compound to provide a used oil mixture comprising used oil, phase transfer catalyst, and base compound, wherein the phase transfer catalyst comprises a glycol. Still further, Chavet does not teach, show, or suggest removing contaminants from at least a portion of the used oil mixture comprising used oil, phase transfer catalyst, and base compound. For at least the same reasons, Claim 17 and those dependent therefrom which are directed to removing contaminants from a used petroleum distillate are patentable over Chavet.

Considering base claim 25 and those dependent therefrom, Chavet at the very least does not teach, show, or suggest distilling the used oil mixture comprising used oil, ethylene glycol and base compound at a temperature of about 200°C to about 300°C and a pressure of about 0.05 torr to about 200 torr. As noted above, Step (c) of Chavet utilizes a water wash to remove the solvent and alkaline from the used oil prior to the distillation step (Step (d)), and states that the "water washing operation or step (c)... is essential to remove any alkaline reactant in excess, the alcohol if used as a solvent and all water soluble by-products resulting from the alkaline reacted contaminants." (Chavet at col. 4, lines 40-47 (emphasis added)).

Considering base claim 31 and those dependent therefrom, Chavet at the very least does not teach, show, or suggest mixing the used oil mixture comprising used oil and inorganic base compound with a phase transfer catalyst to provide a used oil mixture comprising used oil, phase transfer catalyst and inorganic base compound, and distilling the used oil mixture comprising used oil, phase transfer catalyst and inorganic base compound at a temperature of about 200°C to about 275°C and a pressure of about 100 torr to about 200 torr to remove at least a portion of the phase transfer catalyst, providing a distilled used oil mixture. As noted above, Step (c) of Chavet utilizes a water wash to remove the solvent and alkaline from the used oil prior to distillation (Step (d)).

For at least these reasons, withdrawal of the rejection and allowance of the claims is respectfully requested. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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